DOCUMENT RESUME

ED 345 007 CE 061 013

AUTHOR Wingate, Anne; Woolis, Diana
TITLE Half of Our Future. A Report by the Non-Traditional Occupations Task Force of the Division of Vocational, Technical, and Adult Education, Department of Education, State of Connecticut.
INSTITUTION Connecticut State Council on Vocational-Technical Education, Hartford.; Connecticut State Dept. of Education, Middletown. Div. of Vocational, Technical and Adult Education.
PUB DATE Mar 92
NOTE 39p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adult Education; *Curriculum Development; *Educational Change; *Education Work Relationship; Entry Workers; Equal Opportunities (Jobs); Federal Programs; *Females; High Schools; *Nontraditional Occupations; *Nontraditional Students; Postsecondary Education; Secondary Education; Sex Fairness; Sex Role; Sex Stereotypes; Teacher Education; Vocational Education; Welfare Services
IDENTIFIERS Connecticut; Job Training Partnership Act 1982; Private Industry Councils

ABSTRACT

Based on the results of focus groups, Connecticut's Non-Traditional Opportunities Task Force concluded that despite substantial effort, there is still not enough support for women who wish to enter nontraditional jobs. Recommendations were made for changes in the following areas: (1) redesign of math and science courses; (2) teacher preparation and development; (3) school-to-work transition programs; (4) systemic change in terms of incentives to redesign curricula and programs; and (5) help for the new worker from business and unions. Focus groups also made recommendations by specific program area: adult education, welfare, vocational-technical schools and comprehensive high schools, higher education, and the Job Training Partnership Act and the Private Industry Councils. (Six appendices are included: women in selected traditional and nontraditional jobs; average hourly earnings for selected occupations in Connecticut; vocational enrollments--programs by gender (1988-89); recent federal legislation affecting nontraditional opportunities for women; Connecticut's requirements for sex-bias elimination in programs funded through federal vocational education grants; and Gender Equity grants, 1991-1994, 1989-1991; and a summary of 16 gender equity publications. Twelve footnotes and a list of Non-Traditional Occupations Ad Hoc Task Force Members are also included.) (NLA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED345007

HALF OF OUR FUTURE

A Report by the Non-Traditional Occupations Task Force of the Division of Vocational, Technical and Adult Education, Department of Education, State of Connecticut

Written by:
Anne Wingate, State Council on Vocational-Technical Education
Diana Woolis, Division of Vocational, Technical and Adult Education, State Department of Education

March, 1992

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

A Wingate

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

CE061013

Table of Contents

	Page
Executive Summary	A-E
Preface	1
Introduction	2
Background	3
The Problem	4
Major Issues	5
Section I	
Changes Needed in Education	6
Changing Teacher Preparation and Professional Development	9
School -to-Work Transition	10
Changing Education and Training Systems	11
Helping the New Worker	11
Section II	
Recommendations by Specific Area	
Adult Education	13
Welfare	13
Vocational-Technical Schools and Comprehensive High Schools	14
Higher Education	15
The Federal Job Training Partnership Act (JTPA) and the Private Industry Councils	16
Conclusion	18
Appendix A Women in Non-traditional Jobs	19
Appendix B Hourly Earnings	20
Appendix C Vocational Enrollments	21
Appendix D Federal Legislation	22
Appendix E Connecticut Requirements	23
Appendix F Gender Equity Grants	24-29
Footnotes	30
Task Force Members	31

Half of Our Future

EXECUTIVE SUMMARY

Many of the higher-paying jobs in our economy are non-traditional for women. Included are jobs in skilled manufacturing; construction; technical, mechanical and repair fields; computers; and in science. Although a very high percentage of women now work, it continues to be true that few women acquire the education, training and support necessary to enter and succeed at higher-paying, non-traditional jobs.

By remaining outside the non-traditional work force, women lose higher wages and the economy loses the value of their higher-wage, higher-skill labor.

In an effort to try to understand why more women are not employed in non-traditional areas, the Non-Traditional Opportunities Task Force held focus groups with people from many of the systems throughout the state that educate and train women.

The Task Force concluded that despite substantial effort, there is still not enough support for women who wish to enter non-traditional jobs.

The following recommendations are more fully explained in the body of the report.

Section I

Changes Needed in Education

The Task Force concluded that it is not enough for schools to urge girls and women to take more math and science courses. The courses, as taught, may not be meeting the needs of most students, not just women.

Recommendations:

Math and science courses should be redesigned:

1) **To reduce the fragmentation of information;**
2) **To increase the "meaningful connections" that girls and women can make with the material;**
3) **To use real life examples that are both interesting to women and that lead them to learn about non-traditional careers;**
4) **To reduce reliance upon textbooks and teacher lectures;**
5) **To include "hands on" and "applied" learning;**
6) **To encourage alternative learning styles, such as working cooperatively in groups;**
7) **To use technology both to teach the subject matter and to increase the technical skills of girls and women.**

Changing Teacher Preparation and Development

The Task Force concluded that both teacher preparation and professional development programs need to be changed.

Recommendations:

1) **Teacher preparation programs at the the state's colleges and universities and teacher development programs sponsored by the state Department of Education should emphasize cognitive learning concepts.**

2) Teacher preparation and professional development programs should teach teachers how to organize classrooms that:
-Use alternative methods, such as learning in groups;
-Encourage "hands on" and "applied" learning;
-Rely upon real life projects and original materials to teach concepts;
-Relate these concepts to the lives of girls and women.

3) Teacher preparation and professional development programs should prepare teachers:
-To use a range of current technology such as computers, video cameras and distance learning in creative ways;
-To integrate technology into every aspect of the curriculum;
-To engage girls in the use of technology;
-To advocate for expenditures on technology.

School-to-Work Transition

Among industrialized nations the U.S. is one of the few that makes no substantial effort to provide high school students with knowledge about the world of work, as well as opportunities to participate in structured work-study situations, according to the report, *America's Choice: high skills or low wages!*, by the Commission on the Skills of the American Workforce.

The Task Force believes that schools, colleges and training programs must provide school-to-work transition experiences for **all** students and clients.

Recommendations:

School-to-work transition programs should:

1) Actively recruit girls and women in the same proportion that they attend the school;
2) Provide opportunities to learn about non-traditional careers long before it is time to sign up for a specific program;
3) Provide redesigned math and science courses for girls and women that allow them to enter the programs fully prepared;
4) Ensure that everyone involved understands how to encourage and support girls and women in pursuit of non-traditional opportunities;
5) Ensure that businesses involved structure their part of the program to attract and retain women;
6) Deal with the reservations of parents and other family members.

Systemic Change

Many people pointed out to the Task Force that even with some individuals within an education or training system working to make it possible for women to move into non-traditional jobs, the weight of the traditional perception of women makes change very difficult. The Task Force recognizes that attitudes are difficult to change but believes systemic change is essential.

Recommendations:

1) The state should give educators in schools and colleges and operators of training programs incentives to redesign math and science curricula and to create school-to-work transition programs that meet the needs of girls and women.
2) The responsibility to redesign curricula and programs and to increase the participation of girls and women to at least the same proportion as they represent in the school or program should be incorporated into the performance standards of every teacher, guidance counselor, educational administrator and program operator in the state.

3) The state should train guidance counselors to assist girls and women to enter and succeed in non-traditional programs.

Helping the New Worker

In Task Force conversations with educators, businesspeople, unions and workers, it became clear that some organizations have high turnover rates for new workers and should adopt some new procedures, particularly in areas of non-traditional occupations.

Recommendations:

The Task Force believes that businesses and labor unions should:

1) Analyze their procedures for dealing with young workers with the intent of increasing both the retention rate and productivity levels;

2) Make sure the organization is in compliance with the laws on civil rights, sexual harassment and recruitment practices;

3) Work closely with schools so that workers come to them with the appropriate skills. This includes developing a common language with educators and students about what is needed to succeed in the work place;

4) Provide incentives to training programs to accept and graduate more women;

5) Make the adjustments that help keep women in the work place, such as child care, flextime, job sharing, mentors.

6) Sharpen supervisory skills so that workers get appropriate feedback to help them improve;

7) Train managers and supervisors in diversity, communication skills and gender issues;

8) Train colleagues of new workers to assist the transition into the work place.

Section II
Recommendations By Specific Program Area

Each focus group had recommendations for improving specific programs.

Adult Education

The majority of people served by adult education programs are women; therefore, these programs offer a unique opportunity for the state to guide women into better-paying jobs.

Recommendations:

1) Adult basic education programs should have on-site child care.

2) Change the adult education legislation so that programs can hire certified social workers rather than certified guidance counselors, if needed.

3) Identify and use new methods of teaching math and retraining teachers.

4) Require job shadowing, mentoring and access to current career information in all adult education programs.

Welfare

Most welfare clients need education and work skills if they are to become financially independent. Non-traditional jobs have the potential to provide clients with better incomes, but at the present time few clients are entering these types of jobs.

Recommendations:

1) Provide orientation and regularly up-dated training for eligibility workers and Job Connection staff on non-traditional, high-wage work.
2) The Department of Income Maintenance (DIM) should encourage and provide incentives for all program operators to look for non-traditional placements for clients.
3) The policy restricting changes in employment goals should be carefully monitored to determine whether it reduces non-traditional choices.
4) Job shadowing and other introductions to non-traditional jobs should be incorporated into all DIM-funded programs. Women should be given opportunities to learn about non-traditional jobs during orientation sessions.
5) A long-term study should be undertaken to determine why women re-enter the welfare system, with particular emphasis on the difference between clients who have entered low wage work and those who have entered higher wage work.

Vocational-Technical Schools and Comprehensive High Schools

In general, girls and women do not enter the vocational programs that lead to higher-wage, non-traditional jobs. In addition to the general comments about education made in the preceding part of this report, the Task Force suggests the following:

Recommendations:

1) The state should use some portion of the federal funding allocation to reward faculty with stipends and/or grants for enrollments, retention and placement of women in non-traditional jobs.
2) The state should direct special awards toward excellence in non-traditional education and training, including an outstanding non-traditional student award.
3) Schools should identify attracting girls and women into non-traditional programs as an institutional value and should incorporate it into performance standards.
4) All schools should create a comprehensive career information strategy, with a focus on integrating career knowledge into the existing curriculum. The schools should make use of information from the State Occupational Information Coordinating Committee (SOICC), the State Department of Labor and the Permanent Commission on the Status of Women.
5) Before students select vocational training, they should be provided with information on:
   - the wage structure of the occupation;
   - its earning potential compared with other occupational choices;
   - whether the occupation is considered traditional or non-traditional for women and what that means.
6) Intermediate programs that allow women to make the move to non-traditional training in incremental steps should be designed.

Higher Education

The Community/Technical College system offers many education and training programs requiring two years or less of post-secondary training that can lead to both traditional and non-traditional jobs for women. The enrollment of women in non-traditional areas is still very low.

Recommendations:

1) As the activities of the community and technical colleges are merged, sex stereotyping in the system should be addressed. Central office staff should work with the colleges to draw up a strategic plan to ensure that women get enrolled in non-traditional program areas, whether in the community colleges or in the technical colleges. The plan should include goals and objectives, as well as incentives and sanctions for compliance.
2) Central office staff and college staffs should identify research result that would help faculty redesign their curricula and teaching methods toward those that have been documented to be more successful for female students. Incentives for faculty work on curricula and teaching methods should be developed. Performance standards should be adjusted to reflect the colleges' intent to increase the success rate of women in non-traditional areas.
3) Higher education should devote some portion of its research resources to investigating the effect of curricula design and teaching methods on the success of women in non-traditional areas of study. For instance, Sheila Tobias documented in her book, **They're Not Dumb, They're Different,** [10] that many women who enter college intending to study math graduate in other disciplines. Does that happen in Connecticut and, if so, why?
4) Incentives should be offered to faculty to redesign curricula and teaching methods. Performance standards should be adjusted to reflect the state's determination to increase the attraction and retention of women into non-traditional areas of study.

The Federal Job Training Partnership Act (JTPA) and the Private Industry Councils

JTPA funds pay for training for many women in the state, particularly those on welfare or those who fall below poverty level income. More than 55 percent of JTPA clients are women, but very few enter non-traditional training programs.

Recommendations:

1) JTPA administrations at the state and local level should develop a comprehensive strategic plan to increase the number of women in non-traditional job training. **The goals should become part of the Connecticut Employment & Training Commission' s annual goals for employment and training in the state.**
2) Job training programs funded by the state and federal government should contain a component to teach males appropriate ways to work with women on the job site.
3) JTPA job placement counselors should monitor wages of women when they are placed in non-traditional jobs and take action if the wages are not equal to that offered men.
4) Build funding for support services into contracts with service providers. If JTPA funds cannot be used, supplement with other funds.
5) To the extent possible, place women on job sites with other women and with other people they have trained with.
6) The JTPA state administration should review state and federal policies that inhibit the program operators from meeting the need for math remediation and help them find appropriate funding for such programs.

PREFACE

Many of the higher-paying jobs in our economy are non-traditional for women. Included are jobs in skilled manufacturing; construction; technical, mechanical and repair fields; computers; and in science. Although a very high percentage of women now work, it continues to be true that few women acquire the education, training and support necessary to enter and succeed at higher-paying, non-traditional jobs.

By remaining outside the non-traditional work force, women lose higher wages and the economy loses the value of their higher-wage, higher-skill labor.

A changed world

Although the problems of moving women into the higher wage jobs in the economy have changed very little over the years, our understanding of the work place and the way organizations must function to survive in a global economy has changed greatly.

To be competitive and to make the best use of resources today, each organization in our society has to struggle with how to achieve quality in its work and how to build continuous improvement into its everyday existence.

> **To function with high quality and continuous improvement, organizations rely upon the following concepts: the belief that everyone can learn; the understanding that academic learning should have real life application; the conviction that learning is continuous and life-long; that change is the status quo and that change represents opportunity for improvement.**

As restructuring takes place in business, government and educational institutions, conscious, deliberate thought and planning must be given to ensuring that women--almost half the work force--enter and succeed in non-traditional areas of work and study.

National report

As this report went to press, the American Association of University Women published a report on the inequality of the education received by girls in this country. The report, "How Schools Shortchange Girls," particularly supports our concerns with math and science instruction. [1]

Thank you

Thank you to all the people throughout the past year who shared with us their knowledge, their concerns and their hopes for a better future .

We particularly want to acknowledge the many women throughout Connecticut's work force who are proving that women can succeed in non-traditional jobs. We fully recognize that while we talk about change, these women are living it.

INTRODUCTION

Between 1987 and 1990 the state appropriated funds for a Women Working Technical Program which provided training in electronics and electro-mechanics to prepare low income women for entry level positions in technical jobs.

The state technical colleges in Hartford and New Haven provided the training, and the Departments of Labor, Education and Income Maintenance provided funding. IBM, SNET, Xerox, Pitney Bowes and the Connecticut Business & Industry Association provided advice and guidance.

When the pilot project came to an end, a group of those involved with the project, as well as others concerned about non-traditional opportunities for women, convened to discuss what had been learned from the effort and to decide what the next steps should be.

This group became the Non-traditional Occupations (NTO) Ad Hoc Task Force of the Division of Vocational, Technical and Adult Education of the State Department of Education. The Task Force includes members from state agencies and business.

Next steps

While recognizing that the Women Working Technical Program had provided valuable training to the women who had participated, the Task Force concluded that to stimulate major change, it must move beyond individual programs and focus on the education and training systems in the state.

The Task Force used focus groups to look at several state systems that provide or fund occupational education and training for women: higher education, vocational programs in comprehensive high schools, the regional vocational-technical school system; adult education; the federal job training system (JTPA); welfare , business and labor unions. A focus group was also held with women who work in non-traditional occupations.

Reform efforts

In addition, the Task Force looked at reform efforts in education and welfare from the point of view of their potential effect on women's ability to participate in high wage work.

BACKGROUND

What are Non-traditional Jobs and Why are They Important?

Non-traditional jobs for women are defined as those jobs in which 75% or more of those employed are men. Nationwide in 1988, only 9 percent of all working women were employed in non-traditional occupations. (See Appendix A). **This fact is important to women and the economy because women in non-traditional jobs earn 20 percent to 30 percent more than women in traditional occupations.** (See Appendix B).

Connecticut's Labor Market

The Task Force found that during Connecticut's recent labor shortage, the demand was greatest for skilled production workers, engineering and other technicians, health workers and business and office automation workers.

According to the State Council on Vocational-Technical Education's report "Refining Our Vision: New Approaches to Education in Connecticut",[2] the common element in all of these jobs is:

- -Our economy produces large numbers of them;
- -They are "good" jobs, with reasonable pay and benefits and stability over time;
- -All of them have a technology base of some kind, especially in the understanding and the use of computers;
- -All of them require two years or less of college to begin work (although all will require frequent retraining on the job); and
- -The knowledge base and courses required could be integrated into the high school curriculum.

For the purposes of this report, it is important to note that two of the categories--skilled production workers and engineering and other technicians--are non-traditional for women.

Although the state is now in a recession, it is reasonable to assume that when the economy recovers, there will still be a demand for workers in skilled production and technical areas.

Construction jobs are also non-traditional for women, provide good wages and are reasonably stable during good economic times. At present, however, the construction industry is in recession in Connecticut, and jobs are not plentiful.

Although the Task Force believes strongly that education and training programs for construction work should be required to recruit and train women, it also wants to emphasize that there are many non-traditional technical jobs in manufacturing and the service industries that are part of the range of occupations women should explore.

The Task Force concentrated its efforts on investigating programs that were designed to prepare women for non-traditional jobs requiring two years or less of education and training. In the future the educational systems that award undergraduate and graduate degrees in engineering and science should also be examined.

THE PROBLEM

Despite two decades of recognition of the problem, women are still under-represented in the better-paying jobs in the state's labor market.

Why does this continue to happen? There are many reasons, some of which have changed very little since the problem was first identified:

- -Society continues to communicate that the "appropriate" jobs for women are different from the "appropriate" jobs for men;
- -Many good-paying jobs require a background in math, science and technical skills, and fewer women than men choose those areas of study;
- -Those who advise women about studies and careers steer women away from non-traditional jobs;
- -Those who control hiring in the better-paying jobs still frequently choose not to employ women;
- -Male colleagues in careers dominated by men are often unhelpful or actively hostile to women entering the field;
- -It can be so stressful to be a "pioneer" in a non-traditional job that many women end up making other choices even if the choice does not pay as well.

Meanwhile, in addition to the inequity of women not having equal opportunities to participate in the best-paying jobs, the economy loses by not having more of its labor force engaged in highly productive and highly paid work.

Changes Made

Some improvements have taken place over the last two decades:

- -Laws have been passed making it illegal to discriminate against women in the workplace;
- -Some schools and colleges have strongly urged women students to take more math, science and technical courses;
- -Some guidance counselors and other student advisors have encouraged women students to consider non-traditional careers;
- -Some training programs have been developed that provided women with both the knowledge and the support necessary to succeed in non-traditional, better-paying jobs;
- -Some women have entered non-traditional jobs and serve as mentors and role models to others.

THE RESULT IS THAT THERE ARE MORE WOMEN IN HIGHER-PAYING, NON-TRADITIONAL JOBS THAN THERE WERE TWO DECADES AGO--BUT THE PERCENTAGE IS STILL VERY LOW.

CONCLUSIONS

After several months of studying the education and training systems in the state, the Task Force concluded that despite substantial effort, there is still not enough support for women who wish to enter non-traditional, higher-paying jobs. The Task Force also found that there are few, if any, incentives for educators, program operators and government officials to engage in the hard work of changing the systems they oversee so that women can gain the skills they need to succeed in non-traditional opportunities.

MAJOR ISSUES

As the Task Force met with focus groups throughout the year, certain issues came up in each of the discussions: the need for better math and science preparation and the need for better information about the labor market, especially about the differences in wages and earning potential between traditional jobs for women and those requiring technical skills.

Math, particularly, has been called a "critical filter" to entering many higher-paying, non-traditional jobs in the economy, and not gaining suficient skills has long been recognized as a serious barrier for girls and women.

New approaches. Knowing that some of these problems have been recognized for at least twenty years, the Task Force tried to find some new ways to think about solutions. It concluded that it needed to look at:

- **The way educators perceive learning and teaching;**
- **The way the society handles the school-to-work transition of young adults;**
- **The preparation and professional development of teachers;**
- **The rewards and disincentives that can be used to change education and training systems; and**
- **The way in which those already established in jobs and careers perceive and treat new workers.**

The first section of this report covers the issues which affect all the education and training systems in the state, while the second section discusses problems that were identified in specific systems.

SECTION I

CHANGES NEEDED IN EDUCATION

Females continue to choose math, science and technical courses less often than males, despite the fact that such courses are essential for many higher-paying jobs.

As it happens, most students are not succeeding very well in math, not just girls. For instance, in the recent National Assessment of Educational Progress results, only nineteen percent of Connecticut eighth grade students were considered well prepared to go on to higher math. [3] This contrasts well with the national average of twelve percent but still indicates a need for teachers in all grades to use new teaching techniques that have been developed for math and science. The most promising of these rely less on textbooks and lectures and more on cooperative learning, real life projects and creative uses of technology.

Changing Our Teaching Methods

How do we learn?

Traditional education is based on the idea that children learn by memorizing bits and pieces of information. Eventually the student is expected to put everything together into some sort of comprehensive whole.

However, supporters of "cognitive" learning believe that the brain is designed to deal with the confusion of the world around us and actually requires a great deal of input in order to detect patterns. "The brain is looking for meaningful connections: (teachers) actually cut those off when they reduce learning to memorization of facts that have no personal meaning to the learner," as Renate Caine, professor of education at California State University at San Bernardino explains. [4]

According to an article by Barbara Means and Michael S. Knapp in the December, 1991, issue of *Phi Delta Kappan*, cognitive learning encourages teachers to make connections with students' out-of-school experiences and culture. [5]

> **It also expects teachers to model higher-order intellectual processes, such as thinking aloud while reading a text and connecting it to previously known facts, externalizing the thought processes that go into solving a mathematical problem, or demonstrating the planning and revision processes involved in composition. In addition, teachers are asked to encourage multiple approaches to solving problems; to help students solve complex tasks by breaking the task into stages and by making dialogue, not instruction, the medium for teaching.**

Assuming, for the moment, that a school system wants to incorporate more of these learning concepts, what should educators developing new curricula keep in mind about what might constitute "meaningful connections" to girls and women?

Useful examples in math and science that constitute "meaningful connections" for girls and women may vary according to race, culture, income level and age. But it is important for educators to avoid jumping to the conclusion that cooking and sewing examples will have the most meaning.

Examples from personal purchases, including cars; examples from design, both clothes and houses; examples from community problems, such as affordable housing or adequate mass transit and examples that explain electricity and machinery, even machine design, in terms of normal consumer products, can all be used.

> **The point is that as math and science curricula move toward teaching concepts in terms of real life problems, teachers will need to understand what meaningful connections will be for girls and women, but should also try to expand those connections into areas that would give their female students some background useful in non-traditional jobs.**

Ways of Learning

In addition to the curriculum, teachers need to recognize the results of research over the past several years that show that "girls tend to perform better than boys in cooperative work groups in which students work out ways of tackling problems together. Boys tend to respond better than girls when tasks are presented as competitions or games in which one must apply or work within a set of prescribed rules," according to Carol Gilligan, writing in **A Different Voice**.[6]

Luckily, cooperative learning is being recognized as valuable for all students today, as a way of preparing students for adult life in restructured organizations that emphasize good decision making at all levels, as well as working in teams.

> **Teaching subjects in depth, using projects to encourage problem solving, having groups of students work together, "coaching" students to develop their own critical thinking skills, using "applied" or "hands on" learning, introducing real life problems and creatively using technology, such as computers, calculators and video cameras, are all being recognized as better methods of teaching.**

The new methods are breaking down old stereotypes about the way that people learn and are based on the belief that people actually learn in different, but equally valid, ways.

As these changes take place in our ideas about how people learn and how teachers should teach, it is important to construct curricula that take into account not only the lives of girls and women, but also what it would take for them to succeed in non-traditional jobs.

Learning To Use Technology

Why do it?

Many successful math and science curricula today make it possible for students to solve probems through the use of technology. Not only can sophisticated calculators and new software for computers help students master math and science, but obviously the understanding and use of computers is a crucially important technical skill of its own.

Studies show that unless schools are extremely careful, computers become the unspoken province of boys, with girls unable to get equal time on the machines and equal attention and instruction from faculty.

Boys expect and demand time, and girls do not. The result is that without firm guidelines for use and constant encouragement, computers and other technology remain outside the experience of young women.

In the January 15, 1992, issue of *Education Week*, David L. Pagni, professor of mathematics at Calfornia State University at Fullerton, tells about working with a group of 11th grade girls in a special program.[7] The girls were all college-bound, but had been doing poorly, or failing, at math. At a month-long course in the summer, they were taught to use a sophisticated graphing calculator as they learned math. The result was that the girls not only learned math, but they gained enormous self-confidence from mastering the calculator and its power to help them understand math.

Such things as computers, sophisticated calculators and video equipment should be gender-free tools, available to every student because they multiply the ability of the user and because the world of work increasingly depends on their use. But in education, technology is in danger of slipping outside the sphere of interest of girls and women, and it will take a concentrated effort to stop that slippage from continuing.

Mastering real world skills

Carol Gilligan, writing in **Making Connections: The Relational Worlds of Adolescent Girls at Emma Willard School** found that around the age of 11, girls in our society feel very confident of their own insights and ideas, but by the age of 15 or 16, they no longer have that confidence.[8] During that same time period the gap in achievement test results grows between boys and girls.

Do girls lose their ability during the years between the ages of 11 and 16? Of course not, but it appears that many of them lose confidence that they can master the "hard" parts of the real world--math, science, and perhaps increasingly, the uses of computers beyond word-processing.

The Task Force believes that girls and women can more effectively master math, science and computers and use that knowledge to pursue higher-paying non-traditional jobs if we are willing to change our ideas about how people learn and how teachers should teach.

RECOMMENDATIONS ON EDUCATIONAL CHANGES

The Task Force concluded that it is not enough for schools to urge girls and women to take more math and science courses. The courses, as taught, may not be meeting the needs of most students, not just women. Members urged that educators redesign math and science courses:

1) To reduce the fragmentation of information;

2) To increase the "meaningful connections" that girls and women can make with the material;
3) To use real life examples that are both interesting to women and that lead them to learn about non-traditional careers;
4) To reduce reliance upon textbooks and teacher lectures;
5) To include "hands on" and "applied" learning;
6) To encourage alternative learning styles, such as working cooperatively in groups; and
7) To use technology both to teach the subject matter and to increase the technical skills of girls and women.

CHANGING TEACHER PREPARATION AND PROFESSIONAL DEVELOPMENT

Task Force members concluded that more funds will have to be committed to teacher preparation and professional development programs if teachers are to change the theoretical base that has been underpinning education for many years.

As preparation and development programs are changed, educators must ensure that the distinctive learning styles of women are understood and that those concepts enter into the new curricula. **It is not enough to learn to teach math concepts through the use of real life projects, it is essential to learn to structure the projects to take into account the interests and career needs of girls and women**

> **The Task Force strongly believes that it is the responsibility of educators to teach math, science and technical subjects in such a way that girls and women not only succeed but that they also make choices to continue on in those fields.**

RECOMMENDATIONS FOR TEACHER PREPARATION AND DEVELOPMENT

1) Teacher preparation programs at the state's colleges and universities and teacher development programs within the state Department of Education should emphasize cognitive learning concepts.
2) Teacher preparation and professional development programs should teach teachers how to organize classrooms that:
   -Use alternative methods, such as learning in groups;
   -Encourage "hands on" and "applied" learning;
   -Rely upon real life projects and original materials to teach concepts;
   -Relate these concepts to girls and women.
3) Teacher preparation and professional development programs should prepare teachers:
   -To use a range of current technology such as computers, video cameras and distance learning in creative ways;
   -To integrate technology into every aspect of the curriculum;
   -To engage girls in the use of technology; and
   -To advocate for expenditures on technology.

SCHOOL-TO-WORK TRANSITION

Among industrialized nations the U.S. is one of the few that makes no substantial effort to provide high school students with knowledge about the world of work and opportunities to participate in structured work-study situations, according to the report, *America's Choice: high skills or low wages!*, by the Commission on the Skills of the American Workforce. [9]

Although American high school students and other young adults often spend a great deal of time at part-time jobs, there is rarely any effort to connect that experience to the school curriculum. Consequently, most young adults leave school not only without specific skills, but also without sufficient background in identifying and solving real life problems, in working in teams or in communicating ideas clearly to others.

Although all young adults suffer from the lack of effective school-to-work transition programs, it is a greater problem for young women. Those who hire and train for higher-paying, non-traditional jobs may be less tolerant of young women who come without the appropriate skills than they are of young men.

School-to-work Transition Programs

School-to-work transition programs could help girls learn some of the skills that make for successful employees in non-traditional jobs before they leave the supportive atmosphere of school.

There are several good models:

- "Tech prep" or "2+2" programs are now being funded in Connecticut through the federal Carl Perkins Act. These programs encourage local high schools, regional vocational-technical schools and community/technical colleges to coordinate their courses and programs so that high school students entering them at the 11th grade learn skills that will be useful in the work place or let them continue on to a two-year college. Businesses help by reviewing curricula and giving students access to the work place.
- Projects in the community which integrate academic learning with solving real life problems;
- Cooperative work experience programs that integrate on-the-job requirements with school curricula and that develop work readiness skills.

RECOMMENDATIONS FOR SCHOOL-TO-WORK TRANSITION

The Task Force recommends that schools, colleges and training programs provide school-to-work transition experiences for all students and clients. As they do so, they must ensure that the programs are constructed to:

1) **Actively recruit girls and women in the same proportion that they attend the school;**
2) **Provide opportunities to learn about non-traditional careers long before it is time to sign up for a specific program;**
3) **Provide redesigned math and science courses for girls and women that allow them to enter the programs fully prepared;**
4) **Ensure that everyone involved understands how to encourage and support girls and women in pursuit of non-traditional opportunities;**
5) **Ensure that businesses involved in the programs structure their part of the program to attract and retain women.**
6) **Deal with the reservations of parents and other family members.**

CHANGING EDUCATION AND TRAINING SYSTEMS

Many people in the focus groups pointed out that even with some individuals within an education or training system working to make it possible for women to move into non-traditional jobs, the weight of the traditional perception of women makes change very difficult.

Changing attitudes. Many counselors and educators have had girls and women reject getting involved in education or training for non-traditional jobs and use those anecdotes as "proof" that the fault is not in the program but in the attitudes of women.

Social attitudes, of course, are very difficult to change, but the Task Force believes that by **not** preparing girls and women with appropriate education in math, science and technology, by reinforcing sexual stereotypes in our textbooks and conversations, by **not** giving women accurate information about wages and earning potential, by tossing women into the work place without adequate support, such as might be had in a school-to-work transition program, we make non-traditional jobs appear to be beyond the reach of most women.

RECOMMENDATIONS FOR ENCOURAGING SYSTEMIC CHANGE

The Task Force recommends:

1) **That the state give schools, colleges and training programs incentives to redesign math and science curricula and to create school-to-work transition programs that meet the needs of girls and women in the ways suggested in the previous recommendations.**
2) **That the responsibility to redesign curricula and programs and to increase the participation of girls and women to at least the same proportion as they represent in the school or program should be incorporated into the performance standards of every teacher, guidance counselor, educational administrator and program operator in the state.**
3) **That the state train guidance counselors to assist girls and women to get into and succeed at non-traditional programs.**

HELPING THE NEW WORKER

In Task Force conversations with educators, businesspeople, unions and workers, it became clear that organizations should look carefully at their practices for dealing with new workers--both women and men. Some training and apprentice programs in non-traditional areas seem to tolerate, even expect, very high turnover rates in both training and employment.

Creating a supportive environment for new workers should reduce turnover, which is important because we have fewer young people and new entrants to the labor force than we have had in the past.

> **Programs to integrate new workers into the work force are especially important for women in non-traditional jobs because there may be few, if any, other women to serve as mentors and to help them learn the "unwritten" rules of the game.**

It can be hoped that school-to-work transition programs will help somewhat because the introduction to work places will be gradual, but, in addition, it is important for supervisors of new workers to think abouthow to make integration successful.

RECOMMENDATIONS FOR EMPLOYERS AND LABOR UNIONS

Businesses and labor unions should:

1) Analyze their procedures for dealing with new workers with the intent of increasing both the retention rate and the productivity levels;
2) Make sure the organization is in compliance with the laws on civil rights, sexual harassment and recruitment practices;
3) Work closely with schools so that workers come to them with the appropriate skills. This includes developing a common language with educators and students about what is needed to succeed in the work place;
4) Provide incentives to training programs to accept and graduate more women;
5) Make the adjustments that help keep women in the work place, such as child care, flextime, job sharing, mentors.
6) Sharpen supervisory skills so that workers get appropriate feedback to help them improve;
7) Train managers and supervisors in diversity, communication skills and gender issues;
8) Train colleagues of new workers to assist the transition into the work place.

SECTION II

RECOMMENDATIONS BY SPECIFIC PROGRAM AREA

In addition to the issues raised in the preceding pages, each of the focus groups had comments and recommendations for improving specific systems.

Adult Education

The majority of people served by adult education programs are women; therefore, these programs offer a unique opportunity for the state to guide women into better-paying jobs. Workers in adult education programs suggested the following:

Finding: Lack of affordable child care keeps many women out of adult education programs.
Recommendation:

1) Adult basic education programs should have on-site child care.

Finding: Women's needs are different from those of school age girls, and programs need to provide more social services support, if women are to succeed.
Recommendation:

2) Change the adult education legislation so that programs can hire certified social workers rather than certified guidance counselors, if needed.

Finding: Women approach and learn math differently than men.
Recommendation:

3) Identify and use new methods of teaching math and retrain teachers.

Finding: Job shadowing, mentoring and access to current career information are all strategies that help women succeed in non-traditional jobs.
Recommendation:

4) Require these strategies in adult education programs.

Welfare

Most welfare clients need education and work skills if they are to become financially independent. Research has shown that if women on welfare are required to take low wage jobs in order to get off the welfare system, they are unable to support their families. Non-traditional jobs have the potential to provide clients with better incomes, but at the present time few clients are entering those types of jobs.

The Department of Income Maintenance is presently involved in a promising effort with the state Department of Education and the Connecticut Women's Educational and Legal Fund to assess the case management process and to identify areas where clients could be encouraged to pursue non-traditional occupations. In addition to this activity, focus group participants who work with welfare clients suggested some changes:

Finding: While Job Connection supervisors have participated in a workshop on non-traditional occupations, Job Connection workers have received little training on non-traditional occupations nor on the reasons to encourage clients to pursue them.

Recommendation:

1) Provide orientation and regularly up-dated training for eligibility workers and Job Connection staff on non-traditional, high-wage work.

Finding: While DIM has funded some excellent programs in non-traditional areas, most programs still target traditional occupations.
Recommendation:

2) DIM should encourage and provide incentives for all program operators to look for non-traditional placements for clients.

Finding: Program operators have been concerned that a DIM policy which discourages clients from changing employment goals, once selected, reduces participation in non-traditional areas. Although the policy has been somewhat modified, there is still concern.
Recommendation:

3) The policy restricting changes in employment goals should be carefully monitored to determine whether it reduces non-traditional choices.

Finding: Welfare clients have had very little exposure to non-traditional jobs and, therefore, may not choose or request non-traditional job training, even though such jobs have better long-term earning potential.
Recommendation:

4) Job shadowing and other introductions to non-traditional jobs should be incorporated into all DIM-funded programs. Women should be given opportunities to learn about non-traditional jobs during orientation sessions.

Finding: Very little information is available about what factors cause clients to re-enter the welfare system after leaving it.
Recommendation:

5) A long-term study should be undertaken to determine why women re-enter the welfare system, with particular emphasis on the difference between clients who have entered low wage work and those who have entered higher wage work.

Programs in Vocational-Technical Schools and Comprehensive High Schools

Studies have been conducted of enrollment patterns in vocational-technical schools and in vocational programs in the comprehensive high schools. (See Appendix C.) In general, girls and women do not enter the vocational programs that lead to high wage, non-traditional jobs. In addition to the general comments about education made in the preceding part of this report, the Task Force was told about other issues needing attention:

Finding: There are few, if any, institutional incentives to motivate teachers to actively recruit and retain women in non-traditional classes.
Recommendation:

1) The state should use some portion of the federal funding allocation to reward faculty with stipends and/or grants for enrollments, retention and placement of women in non-traditional jobs.

Finding: The state and local districts have many special recognition activities for outstanding teachers, students and programs but none of them focus on the non-traditional area.

Recommendation:

2) The state should direct special awards toward excellence in non-traditional education and training, including an outstanding non-traditional student award.

Finding: Teacher evaluations and performance standards reflect the organizational values of an institution.

Recommendation:

3) Schools should identify attracting girls and women into non-traditional programs as an institutional value and should incorporate it into performance standards.

Finding: Students, guidance counselors and parents often do not have access or exposure to current career information. Consequently, girls and women often do not understand the economic implications of selecting traditional education and training programs.

Recommendations:

4) All schools should create a comprehensive career information strategy, with a focus on integrating career knowledge into the existing curriculum. The schools should make use of information from the State Occupational Information Coordinating Committee (SOICC), the State Labor Department and the Permanent Commission on the Status of Women.

5) Before students select vocational training, they should be provided with information on:

- the wage structure of the occupation;
- its earning potential compared with other occupational choices;
- whether the occupation is considered traditional or non-traditional for women and what that means.

Finding: The step from a life of traditional values and experiences to non-traditional training can be overwhelming for many women, despite their ability and their desire to increase their wage-earning potential.

Recommendation:

6) Intermediate programs that allow women to make the move to non-traditional training in incremental steps should be designed.

Higher Education

The Community/Technical College system offers many education and training programs requiring two years or less of post-secondary training that can lead to both traditional and non-traditional jobs for women. The following issues were raised in the focus groups:

Finding:

Despite continuing efforts, the state technical colleges are predominately male in enrollment and the community colleges are predominately female. This occurs not only because the technical colleges offer only non-traditional programs requiring a math and science background, but also because the community colleges have created a more welcoming atmosphere for women re-entering college and the work force than the technical colleges.

Recommendation:

1) As the activities of the community and technical colleges are merged, sex stereotyping in the system should be addressed. Central office staff should work with the colleges to draw up a strategic plan to ensure that women get enrolled in non-traditional program areas, whether in the community colleges or in the technical colleges. The plan should include goals and objectives, as well as incentives and sanctions for compliance.

Finding:

Like their counterparts in the comprehensive and vocational schools, faculty at the technical and community colleges are provided with little incentive or training to understand and address the issues of how gender affects learning.

Recommendation:

2) Central office staff and college staffs should identify research results that would help faculty redesign their curricula and teaching methods toward what has been documented to be more successful for female students. Incentives for faculty work on curricula and teaching methods should be developed. Performance standards should be adjusted to reflect the colleges' intent to increase the success rate of women in non-traditional areas.

Finding:

The four-year colleges and universities in the state also do not have enough women in non-traditional areas of study. National research shows that the standard curricula and teaching methods for these areas are not designed to help women succeed.

Recommendation:

3) Higher education should devote some portion of its research resources to investigating the effect of curricula design and teaching methods on the success of women in non-traditional areas of study. For instance, Sheila Tobias documented in her book, **They're Not Dumb, They're Different,** [10] that many women who enter college intending to study math graduate in other disciplines. Does that happen in Connecticut, and if so, why?

4) Incentives should be offered to faculty to redesign curricula and teaching methods. Performance standards should be adjusted to reflect the state's determination to increase the attraction and retention of women into non-traditional areas of study.

The Federal Job Training Partnership Act (JTPA) and the Private Industry Councils

JTPA funds pay for training for many women in the state, particularly those on welfare or those who fall below poverty level income.

Focus groups raised the following issues:

Finding:

Although more that 55 percent of JTPA clients are women, very few enter non-traditional job training programs. There is a pervasive perception that women, themselves, are not interested in entering such programs. However, the PIC's have generally not developed specific programs to recruit, support, place and retain women in high wage work.

Recommendation:

1) JTPA administrations at the state and local level should develop a comprehensive strategic plan to increase the number of women in non-traditional job training. **The goals should become part of the Connecticut Employment & Training Commission' s annual goals for employment and training in the state.** The new federal Non-traditional Employment for Women Act (see Appendix D) should be helpful in this effort.

Finding:

Because men have historically not worked alongside women in certain occupations, their actions may create an unacceptable working environment for women.

Recommendation:

2) Job training programs funded by the state and federal government should contain a component to teach males appropriate ways to work with women on the job site.

Finding:

Frequently, women who are placed in non-traditional work do not earn equal pay for equal work.

Recommendation:

3) JTPA job placement counselors should monitor wages of women when they are placed in non-traditional jobs and take action if the wages are not equal to that offered men.

Finding:

Both men and women who are new to the world of work may need supportive services after placement if they are to succeed.

Recommendation:

4) Build funding for support services into contracts with service providers. If JTPA funds cannot be used, supplement with other funds.

Finding:

Women are more likely to succeed in a non-traditional job if there are other women at the job site and other people, women or men, from their training program.

Recommendation:

5) To the extent possible, place women on job sites with other women and with other people from their training program.

Finding:

Most women participating in JTPA programs who might be trained for non-traditional opportunities need remedial math instruction. It is often difficult for program operators to provide math instruction and still meet the demands of the funding requirements.

Recommendation:

6) The JTPA state administration should review state and federal policies that inhibit the program operators from meeting the need for math remediation and help them find appropriate funding for such programs.

CONCLUSION

Good-paying jobs help the state's economy as well as the worker who gets the wages. Because Connecticut has had many high wage jobs, we have been able to support a high level of social, educational and cultural activities since the last century.

Not only is it fair that women should share in these good-paying jobs and the high wages that go with them, but it is economically prudent.

Connecticut needs to develop every worker to his or her highest capability. If it does not do so, it will not be able to compete economically against businesses in other states and nations.

Bringing women into full participation in non-traditional areas of the work force should be part of the state's strategic planning for economic development, education, government reorganization and support for poor families.

Table I

Appendix A

WOMEN IN SELECTED TRADITIONAL AND NONTRADITIONAL JOBS

(United States 1990)

NONTRADITIONAL		TRADITIONAL	
Occupation	**Women as % of Total**	**Occupation**	**Women as % of Total**
Architects	18.4	Librarians	83.3
Engineers	8.0	Registered Nurses	94.5
Police & Detectives	12.1	Elementary Teachers	85.2
Physicians	19.3	Administrative Support	79.8
Telephone Installers	11.3	Secretaries	99.0
Sales Reps/Commodities	22.0	Bookkeepers	92.2
Precision Production, Craft & Repair	8.5	File Clerks	83.8
Mail Carriers/Postal Service	24.9	Health Technicians & Technologists	83.5
Brick Masons/Stone Masons	.2	Bank Tellers	90.4
Carpenters	1.3	Waitresses	80.8
Electricians	1.7	Hairdressers	89.8
Machinists	3.9	Sewing Machine Operators	89.1
Auto Mechanics	.8	Speech Therapists	88.1
Data Processing Equipment Repairers	11.4	Dental Hygienists	99.1
Aircraft Engine Repairers	2.8	Food Counter/Fountain Workers	72.7
Plumbers, Pipefitters and Steamfitters	.9	Child Care Workers	97.0
Airplane Pilots	5.1	Legal Assistants	78.8
Drafters	18.9	Private Household Workers	95.5

Source: *Industry and Occupation Tables,* Bureau of Labor Statistics, U.S. Dept. of Labor, December, 1990
[1] Chart from report by the Permanent Commission on the Status of Women

Table III

AVERAGE HOURLY EARNINGS FOR SELECTED OCCUPATIONS IN CONNECTICUT, 1990

NONTRADITIONAL		TRADITIONAL	
Occupation	**Average Hourly Earnings**	**Occupation**	**Average Hourly Earnings**
Drafter	$12.80 [1]	Typist	$ 8.85 [1]
Structural Drafter	17.17 [2]	Word Processor	9.82 [1]
Electronics Technician	13.65 [1]	File Clerk	7.45 [1]
Maintenance Electrician	15.30 [1]	Switchboard Operator	8.39 [1]
Motor Vehicle Mechanic	15.04 [1]	Bank Teller	7.36 [2]
Maintenance Helper	11.39 [1]	Cashier	4.86 [2]
Tool and Die Maker	15.09 [1]	Child Care Worker	6.76 [2]
Truck Driver	12.36 [1]	Fast Food Worker	4.50 [2]
Stone Mason	15.11 [2]	Nurse's Aide	8.23 [2]
Painters Apprentice	6.54 [2]	Payroll Clerk	10.21 [1]
Construction Worker	17.62 [3]		
Production Worker (Manufacturing)	11.79 [3]		

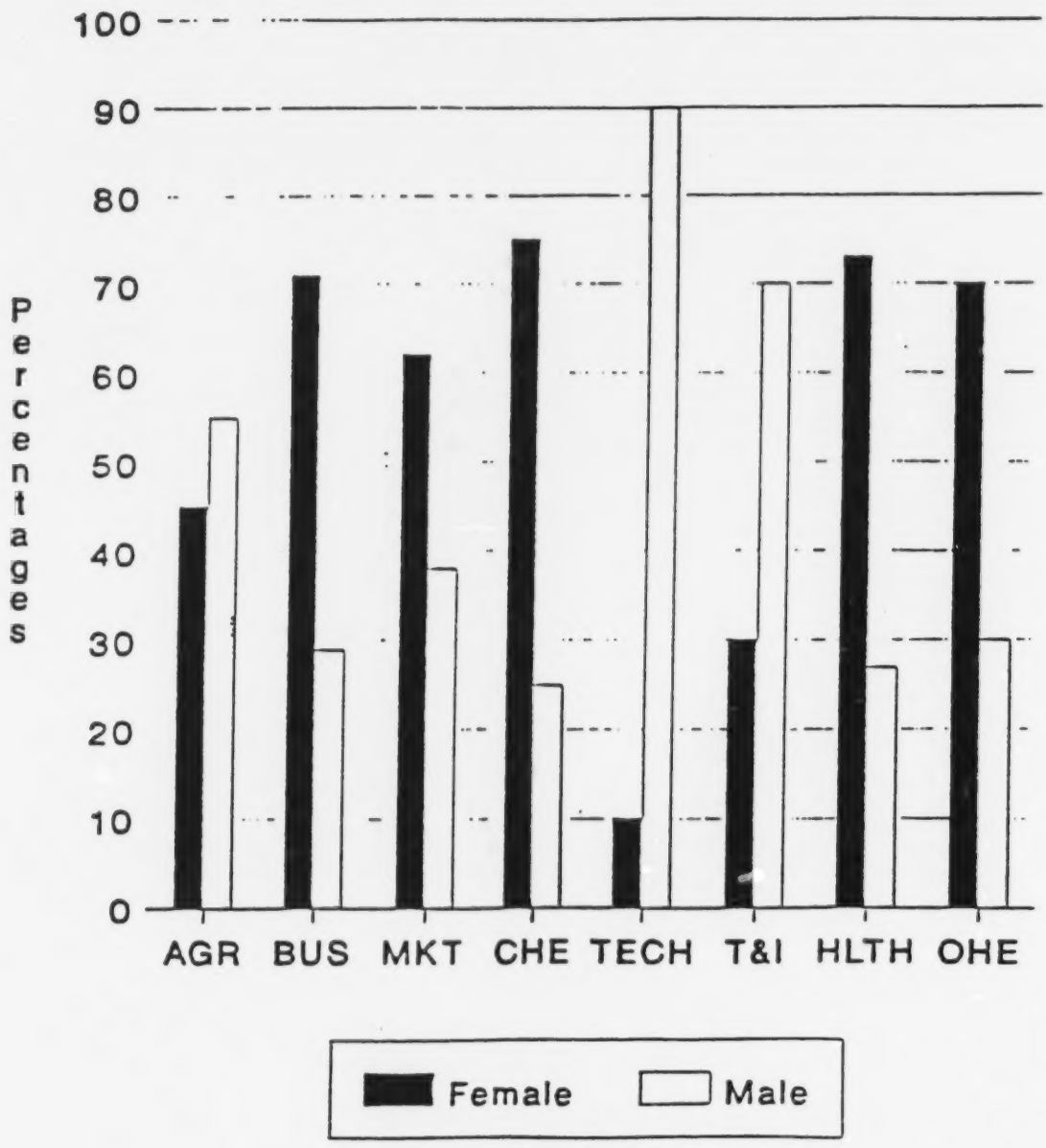
Sources: [1] U.S. Department of Labor, Bureau of Labor Statistics, ***"Connecticut Average Hourly Earnings for Selected Office and Plant Occupations, July, 1990".***

[2] Connecticut Labor Department, Employment Security Division, Office of Research and Information, ***"Occupations in Demand at Job Service Offices in Connecticut, January, 1991".***

[3] Connecticut Labor Department, Employment Security Division, ***"Labor Situation"***, February, 1991.

[12] Chart from report by the Permanent Commission on the Status of Women

CHART A. VOCATIONAL ENROLLMENTS
Programs by Gender (1988-89)



12 Chart from a report by the Vocation Equity Research, Training and Evaluation Center (VERTEC)

APPENDIX D

Recent Federal Legislation Affecting Non-traditional Opportunities for Women

Federal Surface Transportation Act

Approximately $2.2 billion will come to Connecticut over the next six years as a result of the Intermodal Surface Transportation Efficiency Act of 1991.

The building or restoring of roads and bridges with these funds is expected to create over 44,000 jobs in Connecticut, directly, with several thousand additional jobs being created indirectly.

In 1978 Executive Order 11246 established a goal of 6.9 pecent women per craft on every federally funded highway project. That goal has not been reached in the past, but since the 1991 Act permits states to use one-quarter of one percent of their funds for training, Connecticut could use an amount up to $900,000 per year to train for highway construction work.

Some of these funds should be used to train women, so that more women could share in the higher wage jobs offered in the highway construction industry.

Nontraditional Employment for Women Act (Public Law 102-235)

This new act, passed by Congress late in 1991, amends the Job Training Partnership Act (JTPA) to encourage the training and placement of more women in non-traditional employment.

The Act requires the SDA's job training plans and the Governor's coordination and special services plan beginning July 1, 1992, to include goals for the training and placement of women in non-traditional employment and to describe efforts to meet the goals.

The State Job Training Coordinating Committee for the state (in Connecticut, the Connecticut Employment and Training Commission, CETC) is to review state activities and prepare summaries of promising approaches.

In addition, the new Act also allows state education coordination grants (8% funds) to be used in the training, placement and retention of women in non-traditional employment.

The Family Support Act of 1988

This federal act requires states to offer AFDC recipients education, training employment and support services (child care, transportation, etc.) in order to obtain employment and increase economic independence. Connecticut's program is the Job Connection and has been offered by the state since 1985.

Because most of the Job Connection participants are women (92%) staff has become increasingly interested in enabling women to become more self-sufficient by helping them to enter higher wage, non-traditional jobs. To help remove the barriers that women face in entering non-traditional fields, the Job Connection provides directly, or through contracts with appropriate agencies, a wide range of services including basic skills instruction; GED preparation; ESL instruction; vocational exploration, job search and on-the-job training services; child care, transportation and other support services.

Appendix E

Connecticut's Requirements for Sex-bias Elimination in Programs funded through Federal Vocational Education Grants

The state administers approximately $8.5 million in vocational education funds under the Carl D. Perkins Vocational and Applied Technology Act of 1990. Local school districts and post-secondary recipients are required to develop a three-year gender equity plan, as follows:

Year I Eligible recipients will implement a needs assessment study which identifies enrollment data and staffing and other appropriate information.

Year II Districts will develop a gender-equity plan that addresses the findings of the needs assessment.

Year III Districts will implement the gender equity plan.

In addition:

"Each secondary school/college eligible to receive a grant is required to use such funds to improve vocational education programs with the full participation of individuals who are members of the following special populations enrolled in each school/college:

A. Individuals with academic or economic disadvantages;
B. Individuals with limited English proficiency;
C. Individuals with handicaps;
D. **Individuals in programs to eliminate sex bias;**
E. Individuals in correctional institutions, if applicable."

Appendix F

The Vocational Equity Research, Training and Evaluation Center (VERTEC), which was funded by a Carl Perkins grant through the State Department of Education, Division of Vocational, Technical and Adult Education, compiled a description of the programs that have been funded through gender equity grants.

Gender Equity Grants 1991-1994

A Comprehensive Approach to Vocational Gender Equity
Coordinator: Leslie J. Brett
Agency: Connecticut Women's Education and Legal Fund, Inc. (CWEALF)
22 Maple Avenue, Hartford, CT 06114; (203) 247-6090

This project will assist selected vocational-technical schools in encouraging young women to gain greater economic self-sufficiency through non-traditional employment; provide mentoring programs to female students in vocational-technical high schools and work with the Department of Income Maintenance Job Connection Program, which trains 21,000 welfare recipients annually.

Connecticut Displaced Homemakers Coalition
Coordinator: Jennifer Meligonis-DeJohn
Agency: YWCA of Meriden
169 Colony Street, Meriden, CT 06450; (203) 235-9297

The goal of this project is to provide a formalized communication system between programs which serve displaced homemakers; to increase the placement of displaced homemakers in non-traditional job training and to establish and maintain an information clearinghouse on issues relevant to displaced homemakers.

A Curriculum-Based Mentoring Program to Achieve Gender Equity in Technology Education
Coordinator: Richard F. Gagliardi
Agency: Manchester Board of Education
45 North Street, Manchester, CT 06040; (203) 647-3562

The goal of this project is to reduce gender bias in the technology education program of the Manchester Public Schools, grades 6-12, and institutionalize a mentoring program to help recruit women into technology-related occupations.

Equal Justice: Latina Women Transition to Careers in Law Enforcement, Corrections and Security
Coordinator: Delia Berline
Agency: Quinebaug Valley Community College, Willimantic Center
487 Valley Street, Willimantic, CT 06226; (203) 423-1824

The goal of this project is to increase the number of women enrolled in, graduating from, and placed in jobs in law enforcement, corrections and security. The staff will develop a guide to training and employment opportunities targeted to Latina Women.

Equity and Access for Women in Technical Colleges
Coordinator: Linda S. Jacobsen
Agency: Thames Valley State Technical College
New London Turnpike, Norwich, CT 06360; (203) 886-0177

Each state technical college will develop and provide in-service activities for faculty, staff and students on issues related to gender equity and education; develop and host a technical career exploration conference for young women in high school and research and develop action plans regarding the impact of the institutional climate on the participation of women in technical education.

Gender Equity/Life Skills Project
Coordinator: Benjamin Foster
Agency: A.I. Prince Technical School
500 Brookfield Street, Hartford, CT 06106; (203) 246-8594

The goal of this project is to increase the representation of adult women of color, who are economically disadvantaged, in non-traditional vocational programs and occupations. The staff will develop an ongoing support network for the program participants and prepare and place program participants in full-time non-traditional trade offerings at the vocational-technical school.

Hartford Area Training Center /Hartford State Technical College Collaborative
Coordinator: Helen Schwartz
Agency: Hartford Area Training Center, Inc.
56 Coventry Street, Hartford, CT 06112; (203) 286-9202

The goal of this project is to increase access to and opportunities in hi-tech and non-traditional training for minority women and women receiving AFDC benefits and to begin to eliminate some of the personal and institutional barriers that prevent minority women from having access to such opportunities.

Preliminary Awareness of Construction Trades Training (PACTT)
Coordinator: Jennifer DesJardins
Agency: National Association of Women in Construction, Hartford Chapter
376 Ledyard Street, Hartford, CT 06114; (203) 224-0666

This program will work to prepare women for entry-level jobs and apprenticeships in the construction industry.

Project to Assure Gender Equity (PAGE)
Coordinator: Tish Gibbs
Agency: Norwalk Community College (NCC)
333 Wilson Avenue, Norwalk, CT 06854; (203) 852-2040 ext. 239

This project will work to provide female students at NCC with training focused on developing self-esteem, recognizing gender bias and developing strategies for overcoming gender bias. The staff will present a workshop on gender equity to faculty members and administrators and train NCC counselors to facilitate workshops for students and faculty on gender equity.

Project Crecer: Tutor Project for Nontraditional Careers
Coordinator: Gail Champlin
Agency: The Counseling Center, Hartford College for Women
50 Elizabeth Street, Hartford, CT 06105; (203) 236-1215 ext. 400

This project will work to teach female Hispanic high school students about non-traditonal careers, and help them, in turn, teach their junior high school counterparts about educational and career alternatives.

Vocational Equity Research Training and Evaluation Center (VERTEC)
Coordinator: Leslie Brett
Agency: University of Connecticut School of Education and
Connecticut Women's Education and Legal Fund, Inc. (CWEALF)
249 Glenbrook Road, Storrs, CT 06269-2093; (203) 486-5075

This project will gather, analyze and disseminate data in the form of evaluation reports and position papers, on the effectiveness of Connecticut vocational education programs in meeting the educational and employment needs of women. The staff will evaluate programs designed to facilitate the employment of women in non-traditional occupations and provide technical assistance to educators and administrators

---

Vocational Equity: A Resource Center and Educational Program
Coordinator: Judith Rosenberg
Agency: Central Connecticut State University
1615 Stanley Street, New Britain, CT 06050; (203) 827-7621

This project will maintain a central information clearinghouse of curriculum materials regarding gender equity at the Elihu Burritt Library at CCSU; offer three courses per year for teachers; and offer continuing education units (CEU's) for the training program.

Vocational Gender Equity Project
Coordinator: Pat Yosha
Agency: Capitol Region Education Council Teacher Career Opportunities
1 Barnard Lane, Bloomfield, CT 06002; (203) 242-883 ext. 133

This project will provide activities for teachers, guidance counselors, parents and students in seven school districts to address equity in the areas of assessment, activities, materials and behaviors.

GENDER EQUITY GRANTS 1989-1991

Bilingual BREAC: Electronic Assembly Skill Training for AFDC Women
Coordinator: Joan Christison-Lagay
Agency: Employment Resources Development Agency, City of Hartford
2 Holcomb Street
(203) 722-8455

This project will provide bilingual electronic assembly skill training to single female heads of households receiving public assistance and residing in public housing communities.

Computer-Aided Drafting for High School and Adult Females
Coordinators: Richard Ierardi and Nancy Taylor
Agency: E.C. Goodwin Satellite School
431 Minor Street, Bristol, CT 06010; (203) 827-7709 or (203) 584-8433

This project will offer a one-year Computer-Aided Drafting Certificate program to high school and adult females. The staff will work to enhance students' employability through inclusion of job-seeking skill development, offering in-service training through a variety of resources and assisting placement and/or further educational planning. The staff will also establish an ongoing support program using mentors, role models, shadowing experiences, individual and group counseling, short- and long-term career decision making, and job and support resource information.

Hispanic CAMP: Hispanic Career and Mentorship Program
Coordinator: Mildred Fernandez
Agency: Spanish Speaking Center of New Britain, Inc.
160 High Street, New Britain, CT 06051; (203) 224-2651

This project will provide personal and educational counseling, mentorship and role model experiences to female at-risk students in intermediate level schools; help girls identify career opportunities, educational and personal goals; and provide opportunities to have well-paid and career-related summer job experiences.

Mentoring Females in the Vocational-Technical School System
Coordinators: Jackie Slamon and Joy Rice
Agency: Vocational-Technical School System; (203) 638-4102

This project will recruit, train and graduate females in non-traditional occupations; provide support services, career counseling and career role models to attract females into technical, non-traditional fields; and help females develop decision-making skills to clarify career objectives.

Nuevas Alternatives: Women in Technical Trades
Coordinator: Delia Berlin
Agency: Quinebaug Valley Community College, Willimantic Center
478 Valley Street, Willimantic, CT 06226; (203) 423-1824

This project will work to increase recruitment and retention of minority women in technical trades and provide short-term non-traditional pre-training workshops to minority women and their families.

Preliminary Awareness of Construction Trades Training (PACTT)
Coordinator: Janet L. Bauer
Agency: JEBCO, Inc.
29 Melody Lane, East Granby, CT 06026; (203) 651-0545

This project will prepare women for entry-level jobs and apprenticeships in the construction industry.

Project On Women and Nontraditional Occupations
Coordinator: Janet Kniffin
Agency: Permanent Commission on the Status of Women
90 Washington Street, Hartford, CT 06106; (203) 566-5702

The goal of this project is to host a one-day conference on women in the trades with workshops on career opportunities, job rights and informational services; offer to employers/job training specialists or employment advocates a workshop on recruitment and retention issues; provide a networking opportunity for women currently employed or interested in non-traditional occupations; and provide information and resource materials.

Promoting Diversity: A Training and Resource Center
Coordinators: Judith Rosenberg and Carol Ford
Agency: Central Connecticut State University (CCSU)
1615 Stanley Street, New Britain,CT 06050; (203) 827-7621

This project will maintain a central information clearinghouse of curriculum materials regarding gender equity at the Elihu Burritt LIbrary at CCSU. The project will also offer three courses per year for teachers on equity in curriculum giving continuing education units (CEU's) to those who complete the training program.

Toward Eliminating Gender Bias in the State Technical Colleges
Coordinator: Linda S. Jacobsen
Agency: Thames Valley State Technical College
New London Turnpike, Norwich, CT 06360; (203) 886-0177

Each state technical college will establish a Commission on the Status of Women to review matters of institutional climate and recommend changes and will annually hold a technical career exploration conference for high school girls.

Urban Women's Development Project
Coordinator: Jay Schensul
Agency: Institute for Community Research
999 Asylum, Suite 500, Hartford, CT 06105-2476; (203) 278-2044

This program will work to improve the survey/marketing research and computer literacy skills of urban low-income women and assist participants in entering occupations related to math and inquiry skills, marketing research and computer literacy.

Vocational Equity Research Training and Evaluation Center (VERTEC)
Coordinators: Leslie Brett and Linda Lewis
Agency: University of Connecticut, School of Education andConnecticut Women's Education and Legal Fund, Inc. (CWEALF)
249 Glenbrook Road, Storrs, CT 06269-2093; (203) 486-5075

This project will gather, analyze and disseminate data in the form of evaluation reports and position papers on the effectiveness of Connecticut vocational education programs in meeting the educational and employment needs of women. The staff will evaluate programs designed to facilitate the employment of women in non-traditional occupations and provide technical assistance to educators and administrators concerned with expanding vocational opportunities for women.

Warming Up the Chilly Climate: Equity Training for Administrators and Teachers
Coordinator: Charlotte Kinlock
Agency: Connecticut Women's Education and Legal Fund, Inc. (CWEALF)
22 Maple Avenue, Hartford, CT 06114; (203) 247-6090

The goal of this project is to increase the enrollment and retention of girls in technical and non-traditional occupational training. The focus is on providing technical assistance to teachers and administrators about the special barriers that girls face, Hispanic females in particular, and the effects of the triple burden of race, sex and language discrimination.

Women Working Technical
Coordinator: Asher Delerme
Agency: Greater New Haven State Technical College
88 Bassett Road, North Haven, CT 06473; (203) 234-3336

The goal of this program is to provide training for unemployed or underemployed women for entry-level positions in the electronics industry, including skills instruction in electronics, mathematics, and communications, specifically targeting minority women. The project staff will work to bolster participant self-awareness and self-esteem through support services including child care, transportation services and pre-employment job-seeking skills.

GENDER EQUITY
A Summary of Pubications

Gender Equity in Connecticut's Regional Vocational Technical Schools: The Search for a Common Agenda A position paper concerned with developing a common understanding of gender equity.

Gender Equity in Connecticut's Vocational Technical Schools: A Status Report 1984-87
A comprehensive report on the enrollment of students in occupations non-traditional for their gender.

It's Our Shop Too!: A Study of Students in Nontraditional Occupations in Connecticut's Vocational Technical Schools A qualitive study of females and males in non-traditional shops in Connecticut's vocational-technical schools.

Strategies for Success: Recruiting Students into Nontraditional Programs
A compilation of strategies to increase the enrollments of females into occupations non-traditional for their gender.

Shop Talk A quarterly newsletter which presents informative interviews, resource and research updates.

Research Briefs Periodic reports of on-going research projects at the Vocational Equity Research Training and Evaluation Center (VERTEC).

Sexual Harassment Prevention and Response: Sexual Harassment Protocol A protocol for eliminating sexual harassment in the vocational-technical school system.

A Status Report on Displaced Homemakers and Single Parents in Connecticut
A comprehensive report on the educational, employment, and economic status of displaced homemakers in Connecticut.

A Report on Services to Displaced Homemakers and Single Parents in Connecticut's Coordinated Education and Training Opportunities (CETO) System This report documents the current status of services to displaced homemakers and single parents within the CETO system.

Why Not?: A Directory of Connecticut Workers in Nontraditional Occupations
A directory of men and women in occupations no-ntraditional for their gender who might serve as role models for nontraditional students in vocational training programs.

Women in Apprenticeships: Steps to Building a Career This brochure outlines the apprenticeship program, the application process, requirements, and the support services available.

Building a Strong Workforce: An Employers Guide to Recruiting and Retaining Women in Nontraditional Occupations This brochure outlines what is non-traditional and how to recruit and retain women in non-traditional occupations.

We Do More Than The Mandate: A Guide to Sex Equity Activities in K-12 Education in Connecticut This guide, intended for teachers, administrators, and parents, outlines innovative programs which promote gender equity in schools and classrooms.

Gender Equity in Vocational Education Curriculum The purpose of this curriculum is to help teachers examine the impact of gender biases on teachers' and students' performance in the classroom. The curriculum has units on women and work, gender equity and the law, gender fair teaching, balanced curriculum, gender equity in assessment, and gender and culture.

Preliminary Awareness of Construction Trades Training (PACTT) Reference Guide This handbook serves as a reference guide for students enrolled in the PACTT program. The guide outlines the construction industry, the PACTT program, issues related to working on the job site, ways to enter the industry, industry associations, and publications and resources.

Nontraditional Jobs for Women: A Resource Guide for Counselors and Women in Connecticut This guide provides information for young women interested in non-traditional work, guidance for educators and counselors and resources for both new and experienced workers.

==========

For more information about these publications, write VERTEC, the Vocational Equity Research Evaluation and Training Center, 249 Glenbrook Road, Storrs, CT 06269-2093 or call (203) 486-5075.

These publications were funded by grants from the State of Connecticut Department of Education, Division of Vocational, Technical and Adult Education under the Carl D. Perkins Act.

FOOTNOTES

1. American Association of University Women Educational Foundation. "How Schools Shortchange Girls." Washington, D. C. 1992.

2. State Council on Vocational-Technical Education. *Refining Our Vision: New Approaches to Education in Connecticut* (Hartford, Connecticut, 1991), p. 17.

3. National Center for Education Statistics, 1990 NAEP Trial State Assessment. *The State of Mathematics Achievement in Connecticut* (Washington, D. C. , 1990), p. 3.

4. Geoffrey Caine and Renate Caine. **Making Connections: Teaching and the Human Brain,** as quoted in *Association for Supervision and Curriculum Development*, (Alexandria, Virginia, November, 1991), p. 3.

5. Barbara Means and Michael S. Knapp. "Cognitive Approaches to Teaching Advanced Skills to Educationally Disadvantaged Students", *Phi Delta Kappan*, (Bloomington, Indiana, December, 1991), p. 282.

6. Carol Gilligan. **In a Different Voice.** As quoted in "Restructuring Education: Getting Girls into America's Goals", American Association of University Women, (Washington, D. C., August, 1990), p. 3.

7. David L. Gagni. "Speaking Out for Calculators", *Education Week*, January, 1991, p. 25.

8. Carol Gilligan. **Making Connections: The Relational Worlds of Adolescent Girls at Emma Willard School**. (Cambridge: Harvard University Press, 1990), pp. 6-29.

9. Commission on the Skills of the American Workforce, National Center on Education and the Economy. *America's Choice: high skill or low wages!*. (Rochester, New York, 1990), p. 4.

10. Shelia Tobias. **They're Not Dumb, They're Different**. (Tucson, Arizona: Research Corporation, 1990).

11. The Permanent Commission on the Status of Women. *Nontraditional Jobs for Women* (Hartford, Connecticut, 1991).

12. The Vocational Equity Research. Training and Evaluation Center (VERTEC). *Gender Equity in Vocational Programs of the Comprehensive High Schools: A Status Report, 1988-1989.* (Hartford, Connecticut, 1991).

NON-TRADITIONAL OCCUPATIONS AD HOC TASK FORCE MEMBERS

Arlyne Alexander, Women Working Technical Project, IBM
Lois Campanelli, Department of Labor
Ampara Garcia, Department of Income Maintenance
Jan Hasenjager, Department of Labor
Brenda Kaulback, Department of Income Maintenance
Paula Patterson, Permanent Commission on the Status of Women
Chris Sanders, Connecticut Employment and Training Commission
Judith Resnick, Community/Technical Colleges
Beverly Spence, St. Joseph College, (formerly with the Department of Higher Education)
Lauren Weisberg Kaufman, Connecticut Business & Industry Association
Anne Wingate, State Council on Vocational-Technical Education
Diana Woolis, Department of Education, Division of Vocational, Technical and Adult Education

The Task Force thanks the following people for sharing their time and their expertise:

Leslie Averna, Division of Vocational, Technical and Adult Education
Charlene Block, United Auto Workers
Leslie Brett, Connecticut Women's Educational and Legal Fund and the Vocational Equity Research, Training and Evaluation Center
Carol Bridges, State Occupational Information Coordinating Committee (SOICC)
Joan Briggaman, Division of Vocational, Technical and Adult Education
Edward Canning, Carpenters Union, Local 210
Lillian Chin, Job Connection Case Manager, Department of Income Maintenance
Margo D'Allesantro, plumber/pipefitter, Local Union #39
Jennifer Desjardins, National Association of Women in Construction
Henry Durell, Executive Director, Private Industry Council of Southern Connecticut
Karen Finder, Youth Employment and Training Coordinator, Hartford Schools
Rosemary Givens, Drafting Dept. E. C. Goodwin Vocational-Technical School, Bristol Satellite
Judy Gardiner, New Haven Private Industry Council
Victoria Greene, Workplace Adult Literacy Center
Ruth Howell, Greater Hartford Alliance for Literacy
Deborah Koval, State Occupational and Information Coordinating Committee
Janet Kniffin, Permanent Commission on the Status of Women
Cindy Marano, Executive Director, Wider Opportunities for Women, Washington, D.C.
Gail Mellow, Academic Dean, Quinebaug Valley Community College
Marta Moret, Deputy Commisioner, Department of Income Maintenance
Diane Popko, Northeast Utilities
Cynthia Pace, Vice President and Academic Dean, Waterbury State Technical College
Alice Pritchard, Connecticut Women's Educational and Legal Fund and the Vocationa Equity Research, Training and Evaluation Center
Joseph Settee, Bricklayers and Allied Craftsman, AFL-CIO
Jackie Slamon, Vocational-Technical School Equity Coordinator
Faith Stewart, Program Supervisor, Department of Income Maintenance
Ellen Thompson, Hamden Adult Basic Education
John Tirinzonie, Department of Labor
Nancy Vitali, Career Counseling Center, Danielson